

9-1-2009

BS News

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Recommended Citation

(2009) "BS News," *Building Services News*: Vol. 48: Iss. 6, Article 1.

Available at: <https://arrow.tudublin.ie/bsn/vol48/iss6/1>

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bs news

building services news

September 2009

Instruments and Controls

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Domnick
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your water
footprint



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HITACHI
Inspire the Next

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bs news

building services news

ISSN 0791-0878

Published by:

Pressline Ltd,

Carraig Court, George's Avenue, Blackrock, Co Dublin.

Tel: 01 - 288 5001/2/3 Fax: 01 - 288 6966

ISDN: 01 - 211 2338/9

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Editor: Pat Lehane

Advertisement Director: Joe Warren

Origination and Design:

Pressline Ltd. Tel: 01 - 288 5001

Subscription: One Year – €70

Printed by: Swift Print Solutions (SPS).

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opinion

'Price-sensitive' merely euphemism for give away

Building services has always been a price-sensitive sector. Irrespective of project scale – from the smallest domestic job to the largest commercial/industrial scheme – price invariably dictates who gets the work.

A mixture of too many suppliers and little or no regulation resulted in a wildly erratic marketplace where, in the immortal words of Oscar Wilde, everyone knows the price of everything and the value of nothing.

In times of recession this malaise affects all industry sectors but building services is unique in that, even through the boom times of the last decade or so, price was still the deciding factor in who got what job.

Not surprisingly, when now faced with the greatest recession ever to afflict the sector, we are plumbing (sic) new depths in so-called price-sensitivity.

Ironically, the broader market parameters have never been more conducive to breaking this cycle. Clients and end-users are demanding value-for-money; they understand and are willing to invest in life-cycle gains; regulatory controls are plentiful and enforceable; and there are grant incentives to support quality-led, rather than price-led, practices.

There has never been a better time to consign price-led decision-making to the bin in favour of a more sustainable way forward. ■

News and Products

Kelly appointed PM Group Chairman

Kevin Kelly has been appointed Chairman of the Board of Project Management Holdings (PM Group), Ireland's leading engineering, architecture and project management company.

Kevin has served on the

Board as a Non-Executive Director since 2002. He chaired the Audit, Risk & Finance Committee of the PMH Board since 2007 and was also the Senior

Independent Director since that date. Kevin is also a Director of Kerry Group PLC, and Chairman of Schroder Private Equity Fund of Funds PLC, SVG Investments Dublin PLC, and the National Folk Theatre of Ireland.

Welcoming his appointment, PM Group Chief Executive Pat McGrath said: "Kevin's previous commercial experience over many years of managing and leading large Irish organisations along with his "hands on" experience of wide-ranging organisational structures, has been of significant benefit to PM Group as the company has grown, both domestically and internationally, in recent years."

**Multifit GasSaver from PMI**

The Multifit GasSaver is an innovative product that sits neatly between a boiler and flue and recycles the heat from the flue gases which would normally be expelled into the atmosphere and wasted. It has been proven by independent testing to achieve domestic hot water savings of up to 7%, and can reduce the gas used to heat hot water by up to 50% annually.

The Multifit GasSaver stores the condensate normally expelled into the atmosphere through the boiler flue. Heat from this condensate is then recycled to preheat water coming into the boiler from the cold mains supply, significantly reducing the amount of gas required by the boiler to heat the water. This means lower energy bills for the householder and greater carbon savings.

Key features and benefits are low carbon solution, offering up to 700kg carbon emissions saving; reduces cold water consumption by up to 37%; maintenance free; constructed from 316L stainless steel; no controls or settings; saves up to 50% of the gas used to heat hot water annually; simple to install; compatible with a wide range of Baxi Group appliances.

Contact: Potterton Myson Ireland. Tel: 01 - 459 0870; email: post@potterton-myson.ie

**OFTEC 'Boiler Passport' and oil heating show**

Irish boiler manufacturers are now issuing a "Boiler Passport" with every boiler manufactured in Ireland. The passport scheme is designed to provide a means by which consumers will receive a properly-installed and commissioned appliance that meets current Building Regulations.

David Blevings from OFTEC Ireland told *bs news*: "Incorrect installation and failure to commission is frequently the cause of boiler failure. It is therefore proposed that any future warranty will be conditional upon the correct installation of the boilers and the completion of a "Boiler Passport".

Meanwhile, the OFTEC oil heating show will be held at City West Hotel, County Dublin on 2 October from 11.30am to 4pm. Products on display will include oil boilers, cookers and stoves, tanks, and ancillary equipment.

Following the show the 2009 OFTEC Awards for Excellence will take place, the first time this event will be held in Ireland.

Contact: David Blevings, OFTEC Ireland. Tel: 084 - 56002105; dblevings@oftec.org

Antimicrobial copper products directory

In response to rising interest in, and demand for, hygienic copper-touch surfaces, CDA has developed an international online product catalogue of uncoated antimicrobial copper and copper alloy products. Manufacturers and suppliers of such products are invited to submit their ranges for inclusion.

The catalogue currently includes sanitary fittings, architectural ironmongery, ward furniture and medical equipment, and can be viewed at <http://www.copperinfo.co.uk/antimicrobial/products/>.

CDA's Director, Angela Vessey, observes: "With copper being such an effective antimicrobial at room temperature and humidity, hardware made from copper and copper alloys, such as brass and bronze, can provide an additional hygienic measure and help to prevent the spread of these germs."



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News and Products

'Aquasnap the new reference standard'

"With more than 20,000 Carrier Aquasnap units in operation on all continents, this is not just a success story", says Austin McDermott of Core Air Conditioning, "it is the new reference standard".

Today, Carrier continues this innovative approach with the introduction of the new, more powerful, Aquasnap Puron 30RB/30RQ. A combination of the technological

innovation of direct-expansion free-cooling, heat recovery and high-efficiency heat pumps, these new units allow more intelligent buildings and save more electricity.

Anticipating ecological market expectations some years back, Carrier decided to use the non-ozone-depleting chlorine-free refrigerant Puron (Carrier's name for

refrigerant R410A) for the first time in its new residential air conditioner range. It has now extended the use of refrigerant R410A to large commercial and industrial air conditioning with the new Aquasnap 30RB/30RQ units.

Eurovent-certified Class A for the 17kW to 33kW models, and Class

C and Class B for the 40kW to 160kW units, the new chillers are said to provide approximately 17% to 20% energy savings through reduced electricity use compared to previous models.

Contact: Austin McDermott, Core Air Conditioning.
Tel: 01 - 409 8912;
email: Austin@coreac.com



Carrier's new Aquasnap Puron 30RB/30RQ.

New Wavin Sales Representative for NI

Kirth Ferris has been appointed Northern Ireland Sales Representative for Wavin with responsibility for a range of merchant accounts across the region.

He has considerable experience in the manufacturing, self-build and retail sectors having worked in management and sales positions with Country Manor Bricks Ltd, Murdock Building Supplies and Texas/Homebase.



Daikin roadshow success

So successful was Daikin's recent nationwide roadshow – taking in venues in Sligo, Galway, Cork, Wexford and Dublin – that it is already planned to take it to other locations over the coming months.

Daikin's John O'Shaughnessy told *bs news* that they were pleasantly surprised by the high attendance and positive reaction at all the centres visited. The format also proved successful – invitees were greeted with tea/coffee and biscuits at 8am, were presented with a number of brief lectures, and then retired to discuss the points raised over breakfast.

"Delegates were very attentive for the presentations", according to O'Shaughnessy, "with much of the detail and serious questions and answers being teased out more informally over the breakfast. It is certainly a formula we will be repeating."

Contact: John O'Shaughnessy, Daikin.
Tel: 01 - 642 3430; email: oshaughnessy.j@daikin.ie



News and Products

Honeywell thermostatic mixing valves ensure a constant safe temperature at the point of delivery.



Prevent scalding with Honeywell

Facilities managers should ensure employees and the public cannot be scalded by hot water by fitting fail-safe thermostatic mixing valves (TMVs) on hot water outlets, says Honeywell.

TMVs are fitted in the hot and cold supplies to baths, showers and hand basins, to ensure a constant safe temperature at the point of delivery. In healthcare, thermostatic mixing valves certified to Buildcert TMV3, such as Honeywell TM200VP, should always be fitted. Valves to the domestic TMV2 standard, such as Honeywell TM300, are acceptable for most other premises but a risk assessment should be carried out to determine if the facilities are used by vulnerable people, such as the elderly, young children, or the mentally or physically disabled. If so, TMV3 valves should be installed.

Both Honeywell TMV models employ a highly-sensitive wax element which controls the hot and cold water inlets to provide a safe uniform temperature between 38°C and 46°C.

Contact: Honeywell Water Controls. Tel: 0044 – 1344 656511; email: water.control@honeywell.com

Rose Hynes to chair Board Gais

Energy Minister Eamon Ryan has appointed Ms Rose Hynes

as Chair of Bord Gáis Éireann. Ms Hynes has served on the board of BGÉ since June 2006 and succeeds Ed

O'Connell who has retired.

She is a solicitor and member of the Court of Bank of Ireland. Ms Hynes is also a Senior Independent Director of Total Produce; a Director of Bank of Ireland Mortgage Bank; a Director of Shannon Development Authority and director of a number of other companies.

Domestic heating design course

The Institute of Domestic Heating and Environmental Engineers (IDHEE) will shortly introduce a domestic heating design course to be delivered in Dublin by the training body European Energy & Skills.

The course is now available as a distance learning package administered by the Institute and uses the CIBSE Domestic Heating Design Guide as the core text book, supplemented by IDHEE study notes.

Contact: IDHEE. Tel: 0044 – 23 8066 8900. www.idhee.org.uk.

Dimplex SmartRad Revolution

The new Dimplex SmartRad was designed as a cost-effective alternative or complementary solution to underfloor heating. It represents the cutting-edge of radiator technology and comprises slimline, wall-mounted, fan-convactor units providing controllable, responsive and super-efficient room heating. Optimised for use with the very latest heat pump technology, the SmartRad range is designed to provide individual temperature-controlled room heating at water-flow temperatures as low as 35°C, allowing heat pump efficiency to be maximised. Also new from Dimplex is the company's new range of SEDBUK A-rated, high-efficiency condensing boilers. It includes system, combi and open-vent variants with flueing length options of 10m horizontal and 12m vertical. "These boilers boast up to 92% energy-efficiency", says David McConnell, Dimplex Renewables Manager, "and also qualify for an SEI grant of up to €700 when combined with new, state-of-the-art heating controls". For additional information on the aforementioned products, and some other new product introductions from Dimplex, see the enclosed insert: *Dimplex Ecotalk Irl* in this issue of *bs news*.

Contact: David McConnell, Dimplex Renewables.
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Natural ventilation is both cost and environmentally effective

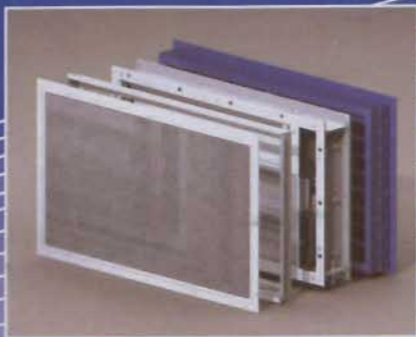
Natural ventilation, unlike mechanical fan forced ventilation, simply uses the naturally-occurring pressure differential forces of air movement, wind and buoyancy to deliver a steady supply of fresh air for building ventilation and space cooling. In an environment where energy conservation is at a premium this sounds ideal ... and it is, says Jim King, Managing Director, Finheat Group.

Naturally ventilating a building actually offers the best of both worlds, combining little or no energy consumption with low capital costs, while still providing adequate fresh air and comfort temperature conditions throughout the year. With plant room also eliminated, the space required for services

is minimised, leading to lower servicing/maintenance costs.

Natural ventilation now makes for one the most practical choices of the day. Modern buildings – with their low u-values and high heat gains – typically have a high

cooling requirement. The climate in Ireland is perfectly suited for natural ventilation applications with low extremes of temperature providing an ample supply of fresh cooling air, even in a typical summer.



Mistrale 100

NATURAL VENTILATION SYSTEM

The Complete Solution

Natural ventilation strategies are founded on two basic operational strategies and essentially comprise either wind-driven systems or a buoyancy (stack effect) system. The Gilberts Mistrale natural ventilation range embraces both of these concepts.

In some locations and building designs, wind alone can be used as the principal driving force. In wind-driven systems the air on the wind-ward side of the building creates a positive pressure with corresponding negative pressure generated on the leeward side. Using this effect air can be easily drawn through the building. Although wind-driven systems can be effective, building design, orientation and location factors are important here for a successful result. While obviously helpful, natural ventilation systems do not need wind to operate satisfactorily.



GILBERTS

More effective strategies employ alternative buoyancy and stack effects to provide the ventilation base. Instead of wind pressure, a vertical stack or shaft in the building can be utilised to allow warmer air to migrate and rise through the building to high level outlets, while drawing fresh cool air in from low level.

Stack ventilation does not rely on the wind at all and, because it does not rely on the pressure or direction of the wind either, offers greater reliability as well as more flexibility on the placement and location of the air intakes.

"At Finheat", says Jim King, "our engineers have extensive

experience of Gilberts natural ventilation systems. They are on hand to discuss the most appropriate strategy for each individual project. The solution may be wind-driven, stack-driven or, for more challenging projects, a mixed-mode system that includes mechanical ventilation.

"With carbon emissions and energy reduction the critical factors governing all aspects of buildings services, natural ventilation offers a solution that is both cost and environmentally effective."

Contact: Jim King, Finheat Group. Tel: 01 – 456 4066; email: jking@finheat.com ■



Contact

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News and Products

Phone booth or car boost?

With mobile 'phones making public telephone booths redundant, Madrid has devised a novel use for these underutilised installations. Ideally located on the edge

of pavements and with their own electricity supply, they make perfect charging stations for vehicles.

Apparently, they are relatively easy to adapt and already 30 kiosks have been earmarked to form part of a test project that, if successful, will eventually lead to a network of state-subsidised vehicle re-charging points.

Barcelona and Seville are now also getting in on the act, the preference in Barcelona being

for "intelligent lampposts". Again these are already in-situ, obviously have electricity, and are located on the edge of footpaths.

**DC fan technology from Mark Eire (TAC)**

In theory, human thermal comfort exists when the rate of heat production becomes equal to the rate of heat loss. Therefore, the accurate control of temperature and relative humidity can bring this about, with air playing a huge part in the even distribution of temperature and control of relative humidity.

The cost of achieving the correct amount of air can be greatly reduced with DC fan technology as opposed to commonly-used AC technology. That is why Mark Eire uses DC fans manufactured by PLC Ltd in its equipment.

Benefits include substantial energy savings; lower functioning costs; perfect for integrating state-of-the-art technology; reduced fine-tuning time; cheaper airflow control components and power components; easy and quick diagnostics; accurate foreseeable interventions that can be planned; and tele-maintenance via modem.

Contact: Michael Twomey,
Mark Eire BV.
Tel: 026 45334;
email: miketwomey@markeire.com



Communication is via LCD display and 4-button keyboard.

**'Toshiba heat pump one of the smallest on market'**

According to Derek Phelan of GT Phelan, Toshiba is one of the few ac manufacturers so far to produce a single fan outdoor unit with a capacity of 14kW. The reason? Toshiba uses a twin rotary compressor which is suitable for use on the triple-coil condensers. Most other manufacturers use scroll or rotary compressors, which makes it difficult to produce a lightweight outdoor unit to rival that produced by Toshiba.

When you compare weights, a twin fan outdoor unit can weigh as much as 120kg while the Toshiba model weighs just 77kg. Also, the overall dimensions of the single-fan outdoor unit (795H x 900W x 320D) make it easier to handle on site, particularly when trying to lift it through a skylight or in other awkward situations. Another distinct advantage is that it can be positioned behind a parapet on a roof,

therefore hiding it from view.

Moreover, the twin rotary compressor allows the system to respond to the smallest of demands by varying the compressor speed to lower RPMs than those available from other compressor types. Likewise at higher speeds, the twin rotary allows the compressor to ramp up to higher speeds with a resultant higher output.

Twin rotary compressors are also balanced, making them quieter in operation with less vibration.

All Toshiba equipment is provided with a comprehensive 3-year warranty covering parts, with a labour allowance. The light commercial range (5kw to 16kW) is suitable for direct replacement onto existing R22 and R407c pipework.

Contact: Derek Phelan, GT Phelan. Tel: 01 - 286 4377; email: derek@gtphelan.ie

Product Review: Instruments and Controls



Delivering performance, compliance, energy efficiency and cost savings

Correctly-specified instruments and controls have always been crucial to the performance of building services installations. However, thanks to incredible advances in technology, today's products and systems deliver hitherto unimaginable benefits. While revised building regulations and related legislation have set the bar extremely high, manufacturers and suppliers have risen to the challenge. Consequently, whether new-build or retrofit, compliance in respect of mandatory requirements, optimised performance outputs and energy efficiencies has never been easier.

Product Review: Instruments and Controls

HONEYWELL

'Wireless' is the way to go!

Wireless heating controls are quick and easy to install, with no control cables to run, no untidy wiring and no damage to home decorations. But there are also many other benefits to wireless controls, in addition to the savings on installation costs.

A wireless thermostat or programmable thermostat can be wall mounted or placed on a table top using the base provided. Many users like to have their heating controls at hand, just as they do with their TV controls.

Wireless programmable controllers, such as the Honeywell CM900 with its large text display, can change the room temperature automatically several times during the day to match temperatures with lifestyles. This enhances comfort and saves energy. They also include other energy-saving features such as Optimum Start, and are suited to radiator and underfloor heating.

Wireless control is especially useful when installing heating systems in large properties because it eliminates long cable runs. It can be especially useful with historical or listed buildings where interior building features and décor need to be preserved.

In older premises which have been extended, wireless controls remove the need to

drill cable holes through substantial stone walls – originally exterior walls – which would be difficult and time-consuming. Unlike TV remote controls which use "line of sight" infra-red signals, the signals used by Honeywell heating



The new Honeywell DT92E energy-saving wireless digital thermostat (left) with its boiler unit.

controls travel easily between rooms and between building levels.

CM Zone extends the principles of wireless control to multi-zone heating

systems. It uses wireless signals from central controllers to HR80UK wireless receiver/controllers on each radiator, which respond only to signals for their designated heating zone. The radiators, in turn, transmit "demand" signals wirelessly to a controller next to the boiler. This aggregates demand to minimise boiler firing and so is good for fuel economy while also helping extend boiler life.

The wireless CM900 programmable thermostat can create a single heating zone very easily by transmitting to Honeywell HR80UK wireless controller heads, fitted on each radiator or underfloor heating valve in the zone. As such it is ideal for creating additional heating zones up to a distance of 30 metres.

Where programmable control is not necessary, the new Honeywell DT92E wireless thermostat is a compact, attractive and easy-to-use alternative.

Still tied to wired programmers because you think wireless offers no advantages or you don't trust the technology? Honeywell says it is time to think otherwise.

Contact:
www.honeywelluk.com



Honeywell wireless controls do not have to be wall-mounted.



MYSON the made in Ireland brand

Built specifically to meet the SEI requirement for Ireland. A full range of standard and RF (Radio Frequency) controls, manufactured by Myson. All the controls come in one package and include easy to follow installation instructions. There are four variations to choose from, one to match every system upgrade. So pick one up today... **Myson Controls – Made here for you.**

SEI Requirement. Minimum Standard

Two zone (space and water) with seven day programmer (time and temperature) control and boiler interlock. Time and temperature control of electric immersion heater and one more zone control or three TRV's

SEI ONE (Minimum requirement) DIVERTER VALVE OPTION

QTY	PRODUCT	CODE
one	Diverter Valve	MPE33/4DV
one	Two Channel Programmer	MEP2c
one	Cylinder Thermostat	MCT1
one	Room Thermostat	MRT1
one	Wiring Centre	MWB16
three	TRV's	PET1/2
one	Immersion Timer	

SEI THREE (Wireless Version) DIVERTER VALVE OPTION

QTY	PRODUCT	CODE
one	Diverter Valve	MPE33/4DV
one	Single Channel Programmer	MEP1c
one	Cylinder Thermostat	MCT1
one	RF Programmable Room Stat + Receiver	MPRTRF
one	Wiring Centre	MWB16
three	TRV's	PET1/2
one	Immersion Timer	

SEI TWO (Minimum requirement) DIVERTER VALVE OPTION

QTY	PRODUCT	CODE
two	Zone Valves	MPE23/4
one	Two Channel Programmer	MEP2c
one	Cylinder Thermostat	MCT1
one	Room Thermostat	MRT1
one	Wiring Centre	MWB16
three	TRV's	PET1/2
one	Immersion Timer	

SEI FOUR (Wireless Version) ZONE VALVE OPTION

QTY	PRODUCT	CODE
two	Zone Valves	MPE23/4
one	Single Channel Programmer	MEP1c
one	Cylinder Thermostat	MCT1
one	RF Programmable room sat + receiver	MPRTRF
one	Wiring Centre	MWB16
three	TRV's	PET1/2
one	Immersion Timer	



heating through innovation.

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Published by ARROW@TU Dublin, 2009

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Product Review: Instruments and Controls

TOUR & ANDERSSON

The small matter of control

Ken Browne, Tour & Andersson's Senior Engineer in Ireland, discusses the need for, the design and application of small terminal units.

A high level of controllability is achieved through a well-designed system that is correctly balanced and where each component delivers optimum performance. In this instance control of the plant is simplified and both comfort and energy-use targets can be met.

When deciding upon proper control, the complexity level

Above: TBV-CM.

must first be considered in terms of two fundamentally different control principles. These are discontinuous control and continuous, or modulating, control.

Tougher demands, as well as a higher degree of control difficulty, require control that enables a varied outcome.



A well-designed and correctly-balanced system means that both comfort and energy-use targets can be easily met.



desired indoor climate at the lowest possible energy-use, all terminals need to be balanced and controlled properly. How this is achieved depends on several factors, but mainly it depends on the plant's prerequisites. Here there are three important issues to address – is on/off control sufficient or is modulating required? If modulating control is required, is it necessary to



TBV-CMP with actuator.

Modulating control utilises indiscreet steps to make the control continuous and more accurate.

Modulating control itself is a very broad term. It can be used to include rather simple modes such as proportional control, eg thermostats, as well as more complex control modes such as PID. The best advice to ensure against the risk of control failures is to keep the design as simple as possible.

Having selected a modulating control method it is important to ensure the hydronic system is well-designed and well-balanced.

In order to achieve the

stabilise the differential pressure? If so, where is this stabilised, at each branch or locally?

Regardless what solution is selected, measuring is needed to obtain a fully-controllable hydronic system. This will enable the verification of the flow to check that the design flow is available at each terminal, to receive system documentation, and to perform trouble-shooting whenever necessary.

Contact: Ken Browne, Tour & Andersson Ireland. Tel: 087 280 1095; email: ken.browne@tourandersson.co.uk

et al.: BS News



Honeywell has the future all mapped out

Honeywell leads the world in building control technology, improving the working environment, conserving energy and raising fire and security standards.

In fact, Honeywell building controls can match the needs of any building precisely, from individual controls to a fully integrated management control and protection system.

The market for Honeywell building controls covers every type of location and every kind of customer. And, whatever your requirement, our distributors in Ireland are on hand to provide advice and support. That's how we build strong working partnerships with all customers.

Honeywell's reputation for quality and reliability is second to none. And this, coupled with our market leading innovations, ensures that buildings run smoothly and can easily be upgraded or modified with products that will serve you effectively today and well into the next millenium.

Automation and Control Systems.

Honeywell

**Honeywell House, Arlington Business Park
Bracknell, Berks RG12 1EB**

Telephone: 0044 1344 656000

Fax: 0044 1344 656240

Product Review: Instruments and Controls

POTTERTON MYSON

Potterton Myson leads the pack for SEI controls

A complete controls pack in four options – designed specifically with the Sustainable Energy Ireland (SEI) Home Energy Scheme (HES) grant criteria in mind – is now available from Potterton Myson Ireland. Assembled to include all items needed for the installer to meet the SEI's requirement in the most efficient manner, two of the options offer the additional advantage of wireless controls.

Installers can now choose from – SEI One: Diverter valve option with hard wiring controls; SEI Two: Zone valve option with hard wiring controls; SEI Three: Diverter valve option with wireless

controls; and SEI Four: Zone valve option with wireless controls.

"Myson is the only Irish manufacturer of controls currently offering comprehensive controls packs that make it easy for installers to take up the new business opportunity presented by the HES" says Vincent Broderick, Sales Director, Potterton Myson Ireland. "As many homeowners and landlords may not be aware of the details of the scheme, it is a good idea for installers to chat to customers about it."

Being a national scheme, all homeowners of dwellings built before 2006 may apply.

Landlords and owners of multiple properties may also apply, as well as management companies considering an entire building upgrade. Grants may be made available to homeowners who invest in energy efficiency improvement through set measures in several categories, of which heating controls upgrade is just one.

Grants are fixed for each measure/category and official approval must be in place before any materials are purchased or measures commenced. Reimbursement is paid after the measures are completed and the contractor has been paid by the homeowner. Other conditions may also apply.

Only installers registered with SEI can participate and carry out works on the scheme. Once the works are completed, the installer must provide the homeowner with a detailed Invoice and receipt for all works finished, with a

fully completed, signed and dated "Declaration of Works" form which must also be signed and dated by the householder and left with them.

While the level of funding for heating controls upgrade is €500, the minimum heating controls upgrade which will qualify for a grant is two zones (space and water) with 7-day programmer (time and temperature) control and boiler interlock, time and temperature control of electric immersion heater, and either one more zone control or three TRVs.

However, it must be remembered that there is also a category for high efficiency (greater than 90%) gas or oil fired boilers with heating controls upgrade, the level of funding for which is €700. Potterton Myson Ireland can help here also, having an extensive choice of A rated gas-fired boilers in its Potterton range that are fully compatible with the new control packs.

"We will shortly be offering training on the Myson range of controls and the SEI campaign, in addition to the existing course on Potterton high efficiency boilers", advises Vincent Broderick. "These training sessions will be available in the factory in Limerick, as well as in our training centre in Whitestown Business Park in Tallht. All installers are welcome to participate."

Contact: Potterton Myson Ireland. Tel: 459 0870; email post@potterton-myson.ie



The new Potterton Myson home-energy scheme-related controls packs are available in four options.

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At TA, we believe in always using the right tool for the job. That is why we have the industry's largest range of dedicated terminal valves.



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we know how
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TA 17

Product Review: Instruments and Controls

MANOTHERM

Providing solutions for the process and research sectors

The name Manotherm is synonymous with instruments and controls in Ireland. Established in 1958, the objective was to provide instrumentation and control solutions for both process and research industries.

Using the most advanced products available from some of the world's leading manufacturers, Manotherm has pioneered the introduction of innovative new products, systems and processes across all

industry sectors.

Right from the outset the company philosophy was to engage with, and listen to, customers; to get to understand their requirements; and to then provide the most cost-effective and appropriate solution. To achieve this objective leading brands were sourced from across the globe, making for a unique and unrivalled portfolio.

Such is the strength of the relationships established that major names such as West Instrument, Johnson Controls, Rüeger, Seetru and Bindicator have been trading with Manotherm since 1958.

Over the years the product offering steadily increased with the inclusion of Dwyer Instruments, Gems Sensors, Land Infrared, Jordan Valve, PR Electronics and a host of others. The product types include:

- Flow
- Level
- Temperature
- Pressure
- Humidity
- Valves and steam traps
- Infrared measuring devices
- Environmental
- Sanitary
- Signal isolators
- Calibration

Thommen Meteo Station HM 30 for Barometric pressure, humidity and temperature.



Dwyer Visi-Float Series flowmeters are available in a broad choice of flow ranges with direct-reading scales for air, gas or water.

Today Manotherm is actively involved in most industry sectors including pharmaceutical, food, water, power generation, chemical, semiconductor, mining, HVAC, oil and gas. It provides a broad range of competitively-priced precision instruments for measuring, transmitting and controlling pressure, temperature, level and flow.

Manotherm offers a calibration service for pressure gauges, pressure transmitters, dial thermometers and temperature transmitters. It also provides steam trap surveys – each trap at the designated facility is fully

tested, and any that fail are tagged with an identification number. When the survey is complete, a detailed report is issued.

In addition to providing quality precision instruments and support, Manotherm is also committed to an exceptional level of customer service, including knowledgeable, courteous technical support that generates and maintains long-term relationships.

Contact: Bob Gilbert, Robert Gilbert or Conor Stead, Manotherm.
Tel: 01 – 452 2355;
email: info@manotherm.ie
www.manotherm.ie



Air Conditioning
www.dal.ie

■ Product Supply ■ Service and Maintenance ■ Installation Support

Providers of technical-based
HVAC solutions



Contact

DAL Air Conditioning Ltd.

B3 Centre Point Business Park, Oak Road, Dublin 12. Tel: (01) 460 5555; Fax: (01) 460 5556

Published by ARROW@TU Dublin, 2009

Unit 48, Eastlink Business Park, Ballysimon Road, Limerick. Tel: (061) 409 016; Fax: (061) 409-987

DAL Air Conditioning principals – Matthew Berrigan, Managing & Finance Director, with Donal Keane, Sales & Business Development Director.



Product and System Types

- Chillers
- Comfort Cooling
- Heat Pumps
- Air Handling Units
- Close Control Units

Applications

- Hotel and Leisure
- Pharmaceutical
- Commercial
- Data Centres
- Industrial
- Hospitals
- Retail
- Banking

Here We Grow Again!

Having enjoyed a period of sustained growth and market penetration over the last decade, DAL Air Conditioning is now poised on the brink of a new expansionary phase which will be spearheaded from its Dublin and Limerick offices. Established in 1999 as an engineering-led supplier of HVAC solutions, co-owners Matthew Berrigan and Donal Keane have devised a strategic development plan to ensure continued levels of high-quality service to its extensive and varied customer base.

DAL's core philosophy is based on providing a unique combination of technical excellence; installation expertise; market-leading brands; design support; after-sales service and maintenance programmes; and strong customer relationships. It engages with all parties involved in each project, from the consultant through to the installer and end-user, and then proposes the most appropriate, cost-effective solution.

Dynamic and proactive, DAL provides leadership and advice. This is particularly important in today's changed and very demanding marketplace where regulation compliance, energy savings and environmental considerations are critical. To that end all personnel are highly-qualified and undergo continuous training and refresher programmes to ensure they keep abreast of relevant technical and industry-related developments.

Today's HVAC marketplace is dramatically different to that of 10 years ago when DAL was first established. However, the core strengths which saw it deliver cutting-edge solutions across all sectors of the industry are stronger than ever. Looking to the future, consultants, installers and indeed end-users of HVAC services are faced with perhaps their greatest challenge to date. In DAL Air Conditioning they have the ideal trading partner to meet that challenge.



Air Conditioning

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Phone : (01) 460-5555
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Limerick Office
Unit 48, Eastlink Business Park,
Ballysimon Road, Limerick
Phone : (061) 409-016
Fax : (061) 409-987

Service and Maintenance

DAL Air Conditioning is one of Ireland's leading providers of planned service and maintenance programmes. Because all project installations are unique, programmes are tailored to suit each specific site. That said, common to all is comprehensive coverage 24 hours a day, 365 days of the year.

DAL's service and installation engineers are highly-qualified in all aspects of air conditioning, refrigeration and heating. They also have experience across all market-leading brands. The entire fleet of vehicles is fitted with computerised tracking devices which guarantees efficient and responsive nationwide coverage. They also carry sufficient spares and quantities of replacement gas to minimise system downtime.

Obviously, the objective with computerised planned maintenance programmes is the identification of potential problems and the implementation of appropriate action to eliminate that danger. Being computerised, the client/end-user can also access the service records online at www.dal.ie using a password-protected access code.

Nonetheless, emergencies can and do arise and here DAL excels. From the time an emergency call is logged, the maximum response time, anywhere in the country, is four hours. More often than not it is much less.

This comprehensive cover extends to all manner and make of equipment ranging from fan coil units, heat pumps and flexible space systems through to chillers, close control units, VRV and split systems and air handling units.



Jennifer McCullagh, Sales Manager, Service and Maintenance with Colum Mullaly, Service and Maintenance Director (IRI).

R22 Phase Out and Replacement

The imminent implementation of EU Regulations governing R22 phase-out presents the entire air conditioning and refrigeration sector with a major challenge. DAL has extensive knowledge with regard to R22 gas and equipment replacement and is ideally placed to solve likely problems.

Apart from in-house expertise and knowledge of the issue, DAL also liaises with regulatory authorities such as the EPA and leading product and gas suppliers. In addition, it has access to information and advice as a member of the Institute of Refrigeration of Ireland.

Key dates for the industry to be aware of are:

- From 1 January 2010 the use of virgin R22 will be prohibited in the maintenance and servicing of existing air-conditioning equipment;
- Only reclaimed or recycled R22 refrigerant may be used to service equipment from 31 December 2009.
- Systems operating on R22 will be classed as not serviceable from 31 December 2014.



Aermec and DAL partnership

Aermec has been at the cutting-edge of HVAC technology for 40 years. Today it is one of the world's foremost suppliers with a portfolio of innovative products and systems which constantly set industry benchmark standards.

Given its commitment to quality and delivering dedicated HVAC solutions, it is fitting that DAL is its sole distributor in Ireland. In fact, this partnership dates back 10 years to when DAL was first established and so endorses DAL's core philosophy which, above all else, is based on successful, long-term trading relationships.

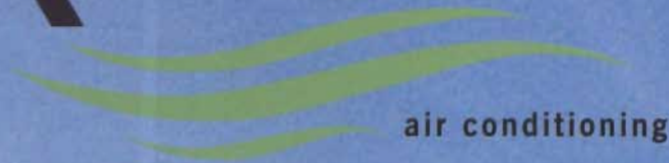
The Aermec portfolio is extensive and includes air to water and water to water chillers; air handling units of all shapes and sizes for every conceivable application; and an extensive range of pioneering air and ground source heat pumps.



Left: Trevor O'Mahoney, Contracts Manager with Larry Swift, Applications Manager.

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MEBSCA

MEBSCA annual outing dispels the gloom

The 27th annual golf outing of the Mechanical Engineering and Building Services Contractors Association (MEBSCA) took place recently at Newlands Golf Club, the seventh time the event has returned to this venue

Despite the current negative sentiment in the industry, the outing was well attended and the rain held off until evening. The golfers all had an enjoyable day, which was followed by a beautiful meal in the Clubhouse.

The Vice-President's prize was presented by Michael Stone (Designer Group) to Desy Haughton of Haughton & Young, who tallied up a score of 36 points.

Negative sentiment fails to dampen Newlands outing

The President's prize and the Eamon McGrattan Memorial Cup was presented by Michael Kennedy (Mercury Engineering) to the winner, John White of Erba Engineering, who returned a very impressive 41 points.

The Chairman Michael Kennedy thanked all the attendees for their participation and extended a special welcome to guests John Doherty, Edwin Kenny, Des Binley, Tony Gillen and John Finan. He extended a special word of thanks to John White and Des Binley for their contribution to organising and running the outing. ■



MEBSCA President Michael Kennedy (Mercury Engineering, right) presents the winner John White (Erba Engineering) with the Eamon McGrattan Memorial Cup.



MEBSCA Vice-President Michael Stone (Designer Group, centre) and President Michael Kennedy (Mercury Engineering) present the runner up prize to Desy Haughton of Haughton & Young Ltd.



MEBSCA President Michael Kennedy (Mercury Engineering) presents John White (Erba Engineering) with the winner's prize.

Face2Face

Return to learning the way

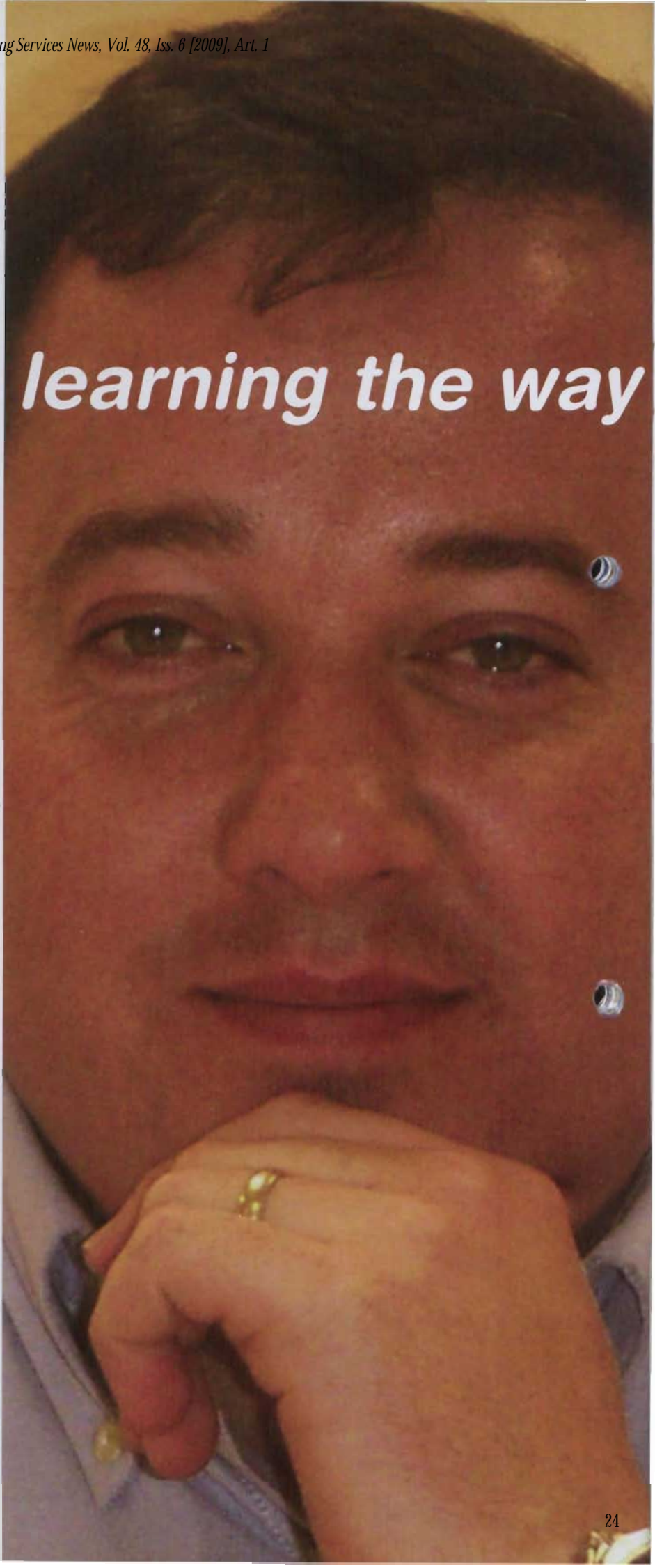
“Apart from the trading

downturn itself, there is no denying that the greatest challenge facing air conditioning contractors at present is exposure to credit and actually getting paid”, says Domnick Ward of Crystal Air. “This situation is further compounded by the new Government Form of Contract, and the absence of the type of ‘leverage’ certification affords electrical and sprinkler contractors.

“That said, our philosophy has always been to develop relationships with our clients based on trust and commitment, and this has certainly stood to us in the current climate. As we go forward I regard this as essential if we are to consolidate and grow when the situation improves.

“Indeed, there are already tentative signs of an improvement and the green policies being vigorously pursued by Government offer many possibilities. As air conditioning contractors we are ideally placed to advise and support both architects and consulting engineers in ensuring compliance with the raft of building services-related legislation and regulations now being introduced.

“Take for instance R22 phase out. There is still a great deal of confusion with regard to cut-off dates, client obligations, contractor obligations and designer obligations; where can the waste gas go? What about R22 drop-in replacements? Will the existing pipework be adequate to run higher system pressures?



Domnick Ward of Crystal Air is a pragmatic realist with an honest, no nonsense approach to business. Having ridden the crest of the industry boom for the last decade, he and his co-director David O'Brien have now re-adjusted the company's business model to meet today's challenging marketplace.

forward for contractors

"Then there is the question of F Gas regulation compliance. The company registration scheme will be implemented soon but what about individual certification? Will the C&G 2078 be sufficient after 2011? How much will company or individual registration cost?

"As for the suggestion that CO2 systems offer a viable alternative to HFC, how can we prove this if no standard exists? There should be interim certification using EN14511 and, working with SEI and DOEHLG, we could develop an equal standard to JRA4050 with high-temperature hot water and heating solutions down to -15°C using heat pumps. This would open grant funding for domestic installations and obtain Part L compliance in certain applications..

"Turning to BER certification, this is definitely a step in the right direction. However, it is essential that only those genuinely-qualified to do so are entrusted with the role of assessor. There are far too many 'snake oil' sellers proclaiming to understand SCOP/SEER/VRF/AHU/SFP and all the other acronyms who have never set foot on a building site, let alone be in a position to make recommendations on completion of a report.

"As the foregoing illustrates, there are currently a great many unanswered questions and challenges facing Ireland's building services sector. However, because of their combined experience and knowledge base, air conditioning contractors are ideally

placed to help devise a route map forward. That is not to suggest that they have all the answers, just that they can be part of the solution.

"However, for this to come about all building services professionals have to be honest and realistic. Despite the ground-breaking developments of the last decade, the simple 'cut and paste' mentality of recent years is no longer viable. There is no 'one system fits all' solution ... every project has to be assessed individually. Moreover, this assessment process has to take place at the earliest possible opportunity, and include all the disciplines involved.

"In the meantime, and with so much going on in relation to core building services-related issues, it is incumbent on air conditioning contractors to go back to school, so to speak. We can't assume that we have all the answers when it is patently obvious that we do not.

"Nonetheless, what we do have is the means by which to arrive at the correct answers. In the Refrigeration Institute and Refrigeration Skillnets we have the perfect forum for debate, discussion and the exchange of views, ideas and opinions. There is also an excellent educational programme which can be availed of. I genuinely believe that if we maximise this resource we will position air conditioning contractors at the core of building services, viewed as an equal partner by architects and consulting engineers, as well as the various representative associations and Government bodies." ■



"Our philosophy has always been to develop relationships with our clients based on trust and commitment, and this has certainly stood to us in the current climate".

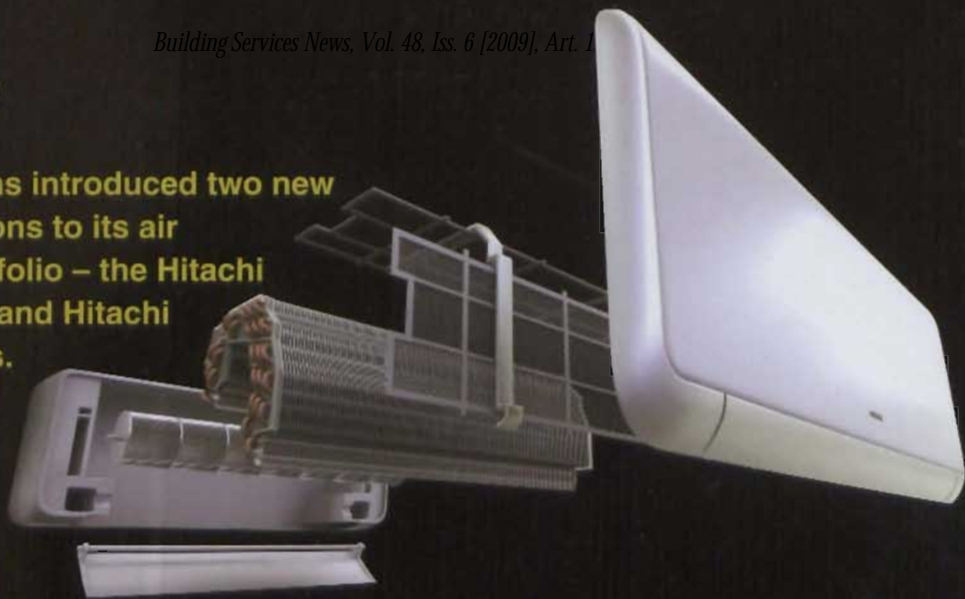


"There is no 'one system fits all' solution ... every project has to be assessed individually".



"In the Refrigeration Institute and Refrigeration Skillnets we have the perfect forum for debate, discussion and the exchange of views, ideas and opinions".

Hitachi Europe has introduced two new significant additions to its air conditioning portfolio – the Hitachi ARG IVX+ Series and Hitachi RAS SX8 S Series.



Hitachi ARG IVX+ and S Series set new standards

According to Fergus Daly, General Manager of Hitachi Europe in Ireland, the new ARG IVX+ is energy-efficient, cost-efficient and space-efficient, making it the ideal installation for modern buildings. It offers excellent flexibility with up to 10 connectable indoor units and extended piping up to 250m.

The new IVX+ unit brings variable refrigerant flow to the inverter split range with fully-independent control. It features Hitachi's DC inverter technology to drive the compressor and fans, resulting in a significant cost reduction in annual electricity charges, and a COP of 4.28.

Energy efficiency is also delivered through the new functions of "Demand Control" and "Wave Mode", which dramatically reduce power consumption.

Available with heating and cooling capacities from 22.4kw to 37.5kw, the IVX+ also features new model fin technology to keep noise levels as low as 53bB(A) during usage.

Daly says: "Top-class compact and lightweight design makes installation of the new IVX+ easier and more flexible than ever. Additionally, because the unit uses a horizontal discharge twin fan set-up, it is extremely efficient on space. The IVX+ is also fully compatible with the Hitachi System Free series of indoor units, and with the full range of Hitachi controls".

Meanwhile, the new S-Series room air conditioning range has been introduced for applications in both the domestic and commercial markets. It delivers a COP of 6.13 and EER of 6.0, as well as low noise levels of 20dB(A). It also has the capacity to destroy airborne bacteria and create a healthier environment.

The sleek, flat-front panel, wall-mounted S-Series units incorporate all the features expected from Hitachi, enabling heating and cooling from 2.5kW to 5.0kW. They remove odours as well as destroying 99% of airborne viruses and

bacteria by generating ionised mist from the air in the room. The RAS SX8 also automatically cleans its micro-mesh stainless filter when the air conditioning operation has ended.

The "Real Dry" function on the units sets humidity levels within the room between 40% and 70% (5% increments), while the function's "house sitter mode" controls the humidity in the room with "Real Dry" running automatically if levels reach 70%.

The technology is compatible with H-LINK Control/Ready to connect to PCS-6RAD adapter and includes a hard-wired remote controller with built-in 7-day timer.

Contact: Fergus Daly or Cormac Nolan, Hitachi Europe (Ireland). Tel: 01 – 216 4406; email: fergus.daly@hitachi-eu.com; cormac.nolan@hitachi-eu.com ■



Refrigeration Skillnet News

Are you missing out on business or wasting management time on unsuccessful tenders? Then the forthcoming Refrigeration Skillnet one-day intensive training workshop is a must.

How to submit a winning tender

Why attend?

More and more private and public projects are awarded by using the competitive tendering process. Tendering, correctly utilised, can have a considerable impact on business growth. The aim of this workshop is to significantly improve participants' abilities to prepare and submit "winning tenders".

It consists of a one-day intensive programme on all aspects of competitive tendering. Each participant will leave the session with specific tender handouts which can be tailored to their specific businesses and utilised in all future tender submissions.

Who should attend?

Owners, managers and key staff responsible for winning new business through the tender process.

Course objectives

- Explain the main types of tendering processes;
- Explain the key stages of the tender process;
- Explain why tenders fail to win;
- Conduct a systematic review of the tender invitation;
- Define the key elements of successful tendering;
- Assess the buyer mindset and key needs;
- Develop a solutions-based approach to the bid;
- Plan an effective and differentiated bid response;
- Make a professional presentation supporting the bid.

Each participant will leave with:

- A deep understanding of the key types and stages of the tender process
- An effective system to assess the right tenders for your business
- A clear insight into the "buyer mindset"
- A clear and systematic process-based approach to tendering from pre-qualification to the pre-contract presentation.

Course content

- Welcome and introduction;
- The four types of tenders and the pros and cons of each;
- How to get on tender lists;
- Why tenders fail;
- The three factors that determine success;
- How to choose the right tenders for your business;
- The key stages of the tender process;
- Pre-qualification;
- Receipt of tender documents;
- Planning preparation of submission;
- Developing your USP;
- Pricing;
- Writing the tender bid;
- The pre-contract meeting and presentation;
- General tips;
- Summary
- Q&A session

Course cost

Network members – €200 per person

Non-members — €350 per person

Venue

Refrigeration Skillnet, Unit 7 Northwest Centre, Northwest Business Park, Blanchardstown, Dublin 15

Date and times

Wednesday, 17 October; 9am to 5pm

Contact Enda Hogan, Network Manager.

Tel: 058 – 44211;

Mobile: 086 - 815 4769;

email:refskill@eircom.net ■

Designing Building Services



Robbie Gilbert, PM Group, is an electrical engineer specialising in electrical building services. An honours graduate of DIT Kevin St, he has worked on a wide variety of projects within the industrial, infrastructural and pharmaceutical sectors. Robbie is currently working on the Corrib gas project in Co Mayo.

Lighting in the Bright Ages

Introduction

Lighting system designers nowadays are presented with the challenge of providing good designs that efficiently and cost-effectively illuminate more complex and challenging spaces within buildings. Lighting solutions were previously calculated and chosen on the basis of providing a blanket lux level in a fully-darkened room and on a flat floor. The lighting designer of today, however, is faced with the challenge of co-ordinating the artificial lighting system with factors such as recent legislation, architectural features, the sun and – most importantly – a more aware and less-forgiving end-user.

With many office workers spending a minimum of eight hours under artificial lights, all lighting design should consider their wellbeing as a priority. It is the lighting designer's duty to provide a comfortably-illuminated space that pleases the majority of people within the area. Various research studies have been

published that point to a well-designed lighting system in a building positively contributing to the productivity and wellbeing of workers. Some of the recommendations are easily and inexpensively implemented and could be considered in future designs.

Various studies suggest that the colour temperature of the lamp installed can have a bearing on the productivity of workers. A room fully illuminated by bright natural daylight would be preferable to workers but this is impossible to implement. The second best option is to replicate daylight using artificial lighting. Daylight consists of all of the visible waves within the light spectrum as illustrated in Figure 1.

The human eye perceives daylight as having a bluish white colour, this short wave light has two benefits. The bluish tinged light is both pleasing to the eye and also assists in the suppression of the production of melatonin in the body, a

sleep-causing chemical. The suppression of melatonin allows a person to perform more productively and remain alert for longer periods.

Fluorescent lamps replicate the bluish tinge of daylight by creating a gaseous glow within the tube that illuminates a coating of a combination of different phosphors. The lamp and coatings block individual light wavelengths, yet the blue light passes through to the external environment unimpeded. By installing "cool" colour lamps, 5000 Kelvin and above, that to an extent replicate daylight, workers should feel a greater feeling of alertness under brighter lights as opposed to the feeling perceived under "warm" 1500 Kelvin lamps.

Preliminary studies have been conducted on office workers with lamps that are of a colour temperature exceeding 17000 Kelvin. In these experiments the participants reported a heightened state of alertness and productivity compared to the lower colour

temperature experienced under a lighting scheme of a lower colour temperature.

Studies also point to end-users being more comfortable with a lighting system when given more control over the light that they are subjected to. Lighting designs of the past were generally controlled from one bank of switches that controlled the lighting for the entire floor. Individuals within an office space perceive their lighting requirements in a different manner. Allowing each individual worker to choose their own lighting condition is not feasible in open-plan offices; however, a more feasible and cost-effective approach would be to follow the BREEAM method for assessing the environmental performance of a building guidelines.

BREEAM suggests that the lighting control mechanism for an area should cover no more than four work stations; circulation areas and areas penetrated by

daylight should also be controlled individually. This will allow greater flexibility and can empower end-users to seek their own preferred lighting levels, thus increasing their comfort within their work area.

A multitude of studies exist promoting various lighting solutions with a view to increasing the comfort of the space occupier. The vast majority of these studies recommend employing more advanced and therefore more expensive lighting schemes. Moreover, it must be noted that the bulk of these studies are commissioned by vested interests such as lighting manufacturers and, in some instances, the recommendations are in conflict with the current codes and standards.

Sun Modelling

Lighting system designs of the past would have been one of the last systems designed for a

building. Nowadays lighting designers become involved during the building conceptual design phase and have the opportunity to become more involved in the facade philosophy by providing performance simulations of potential brise soleil and glazing arrangements. Dynamic sun-modelling can pinpoint areas in a room where daylight penetration can be utilised to provide potential energy savings by allowing the designer to make informed decisions on which artificial lights should be dimmed, and to what extent.

Dynamic sun-modelling should only be considered for high value, predominantly-glazed buildings as a complete study highlighting interactions between the artificial and natural light can be time-consuming and costly. Dynamic sun-modelling has been used to date on a number of high-profile buildings in Ireland and the actual performance of the final building to

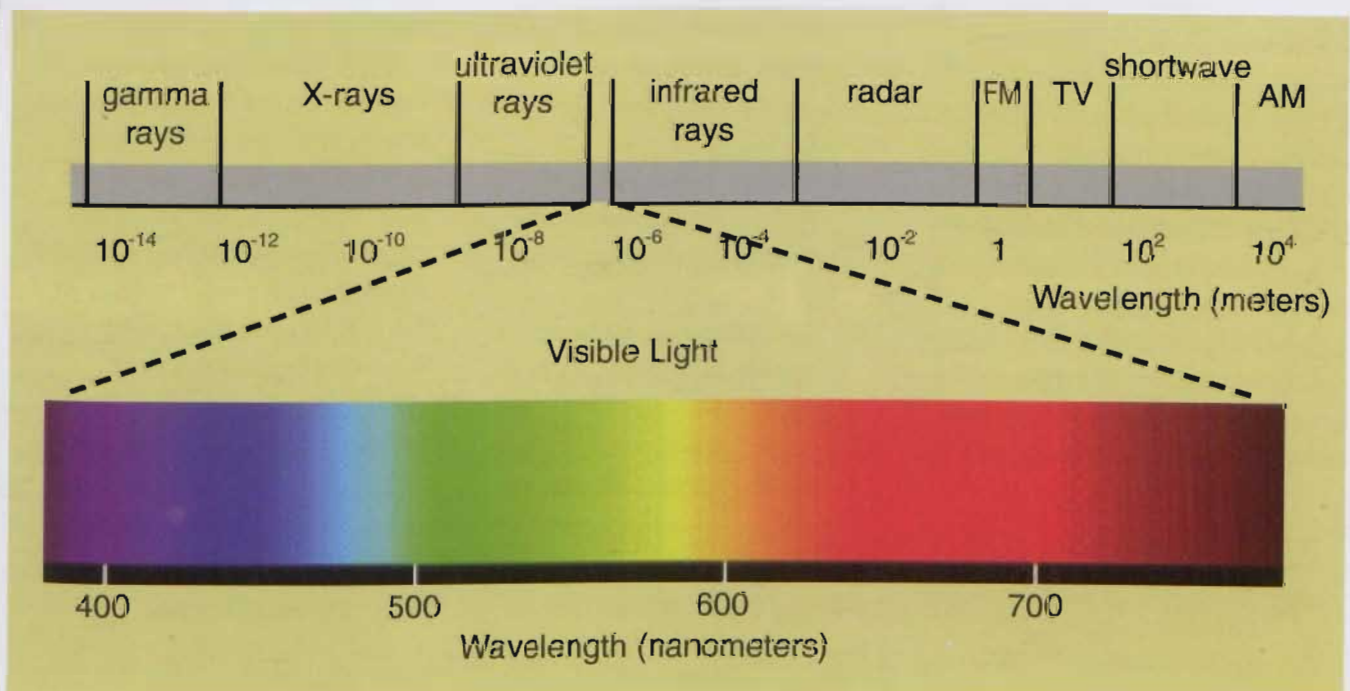


Figure 1: Visible Light Wavelengths

that of the modelled building has been so accurate as to highlight the usefulness of dynamic sun-modelling programmes in identifying lighting system energy saving opportunities.

By embracing daylight into a space, areas of glare are inherent. Surface glare is found for example on a desk that is partially exposed to daylight but other parts of the desk are comparatively darker due to the lower illumination levels given by the artificial lighting system within the room. Surfaces that are affected by glare can be optically uncomfortable for the space occupier but remedies exist to counteract this problem.

The use of tinted glazing is commonly found on buildings to counteract glare by reducing daylight penetration. However, this has a negative impact on the eye's ability to recognise colours. By increasing the reflectance of internal surfaces surrounding the window, the contrast between the outside and inside surfaces can be reduced, therefore reducing glare.

The trade-off between embracing daylight into a space and having areas where glare is optically uncomfortable can be a tricky issue to correct. Facade architectural features are considered as efficient sun breakers and there is a tendency in architectural circles to provide such features as part of the external facade design. In reality, however, only a dynamic modelling of the sun's movements can truly identify if the trade-off

between daylight penetration and glare reduction provided by facade features can be identified.

No single answer is available on how best to solve glare issues as variables such as building aspect, location and objects blocking direct sunlight pose challenges to each project. As mentioned previously, only a complete study of the individual building will provide solutions. Let it be noted that a relatively inexpensive internal blind system can provide the space occupier with a fully-functioning, dynamic method of glare control.

Degradation of materials

While the designers of the building may be concerned with engineering matters such as energy efficiency and architectural issues, the end-user may also have an opinion regarding the entrance of daylight into what effectively is "their space". Many materials are affected by sunlight degradation. It is essential that the design process takes into account the potential damaging affect that daylight can have on, for example, furnishings, fabrics, products etc.

Degradation is caused by three factors:

- (1) Spectral composition of the light – counteracted by glazing type/UV absorbing films;
- (2) Illuminance – counteracted by removing materials from direct sun;
- (3) Period of exposure – sensitive materials should

not be exposed for long periods of time.

Different materials react differently to daylight and it is important that the designer takes into account the conditions that materials in direct sunlight will be under, and how best to counteract potential degradation.

Calculating Energy Usage

Complying with the Energy Performance of Buildings Directive is another challenge faced by today's lighting designer. As part of this Directive the energy required for servicing a building is totalled and the performance of a building is declared in the form of an energy label similar to the energy labelling system for domestic appliances.

With lighting systems in office buildings using anything from between 10% to 30% of the total building energy consumption, any additional capital expenditure on lighting control systems that reduce energy consumption could potentially pay for themselves many times over the course of the building life.

IS EN 15193 provides two methods for the calculation of the energy required to illuminate a building over the course of one year. The *quick method* or the *comprehensive method* are used depending on the complexity of the building and the lighting design but, each method will yield differing values based on the factors taken into account in the calculation. The result obtained

Future lighting designs should compare favourably with benchmark values set down for the lighting energy performance of offices, educational, hospital, hotel, restaurant, sporting, retail and manufacturing buildings as provided within Annex F of IS EN 15193:2007

Calculating the Lighting Energy Requirement in accordance with IS EN 15193

The quick method

$$W_{\text{TOTAL}} = W_L + W_P \text{ [kWh/year]}$$

Where:

W_L : is an estimate of the lighting energy required to fulfil the illumination function in the building

W_P : is the parasitic energy required to provide charging energy for emergency lighting and for standby lighting controls.

$$\text{LENI} = W_{\text{TOTAL}}/A \text{ [kWh/(m}^2 \times \text{year)]} = (\text{Higher LENI Number})$$

A: Total Building Area

The comprehensive method

The calculation required is based on the following:

$$W_{\text{TOTAL}} = W_{\text{Light}} + W_{\text{Parasitic}} \text{ [kWh/year]}$$

However the methods for calculating W_{Light} and $W_{\text{Parasitic}}$ are substantially more labour intensive and take into account correction factors regarding maintenance factors, illuminance, daylight, lighting control system used and room occupancy.

As before

$$\text{LENI} = W_{\text{TOTAL}}/A \text{ [kWh/(m}^2 \times \text{year)]} = (\text{Lower LENI Number})$$

A: Total Building Area

from the calculation of the lighting energy requirement of buildings will be expressed in indices known as "Lighting Energy Numeric Indicators" or LENI numbers.

The LENI will define the lighting (kWh/m²/yr) energy usage for the whole building. The lower the LENI number, the more energy efficiently the building is illuminated. The *comprehensive method* will always yield a lower LENI number as the more detailed calculation takes into account more factors that contribute to reductions in the total lighting energy consumption.

The *quick method* allows for the energy usage to be calculated for the complete building over the period of one year. Tabulated annual standard values within IS EN 15193 must be used to carry out a calculation based on the *quick method*. This method requires significantly less work than the *comprehensive method* but will lead to a higher LENI number.

The *comprehensive method* is a more detailed version of the *quick method* that calculates the lighting energy consumption based on each room within the building, in conjunction with tabulated values

contained within IS EN 15193:2007. The *comprehensive method* can be calculated for an annual monthly or time basis but the extra work involved will lead to a lower LENI number being attributed to the lighting system.

Future lighting designs should compare favourably with benchmark values set down for the lighting energy performance of offices, educational, hospital, hotel, restaurant, sporting, retail and manufacturing buildings as provided within Annex F of IS EN 15193:2007.

Thermal issues

After discussing the increased interactions between the lighting designer and the architect regarding efficient facade design, it is also worth mentioning the added intrusion on the mechanical building services engineer's design. By allowing daylight into a space there can also be potentially inherent thermal issues with overheating of the air mass within the building.

Conclusion

The role of the lighting designer is changing and various techniques, tools and studies are available to help designers make informed decisions on how best to add to the satisfaction of clients. With so much advice and guidance available, the major challenge faced by lighting designers is assessing what information should be utilised in order to improve upon previous lighting system designs. ■

REFERENCES

- [1] Directive 2002/91/EC of the European Parliament and of the Council on the Energy Performance of Buildings
- [2] <http://www.fagerhult.com/planering/energy/energydirective.pdf>



The RACGS Team



The NRG Team



Principal sponsors –
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Lehane of bs news

Having suffered a narrow defeat at the hands of the Northern Refrigeration Golfing Society (NRG) in the inaugural Refrigeration Ryder Cup last year, the Refrigeration and Air Conditioning Golfing Society (RACGS) enjoyed a resounding 9½ to 4½ victory at this year's event.

RACGS REVENGE!

The occasion is something of a paradox – the competition on the golf course is fierce and relentless yet, off the course, that same intensity is applied to forging firm friendships. It is a credit to all involved that it is such an enjoyable, and fun-filled event.

Held in the immaculate PGA National at Palmerstown House Estate, the day proved exceptional. Right from the official welcome – through to tee-times, the food stop on the 10th, photography, meal, entertainment, presentations – the day went like clockwork. An added bonus was the fantastic condition of the course and the exceptional weather.





RACGS Captain Dave Killalea pictured with NRG Captain Mike Kerrigan after he had been presented with the competition trophy



RACGS Captain Dave Killalea receiving a special presentation from Ernie Bate

All credit to RACGS Captain Dave Killalea and his organising committee, with special mention for the incredible effort put in by Mark Kiely.

Principal sponsors of the Refrigeration Ryder Cup are Sauermann and *bs news*, with further sponsorship from 3D Air Sales Ireland, 09MSS, Gasco Ireland, Caral Ireland and RDL. ■



RACGS: 9½ NRG: 4½

Confirming the potential they demonstrated in the tight finish at last year's inaugural event, RACGS enjoyed a comprehensive win in the 2009 Refrigeration Ryder Cup at the PGA National. The series now stands at one apiece and, judging by the comments over the presentation meal, the gloves are now off for 2010.

bs news understands that preparations are already underway across the Irish Sea with a view to NRG redeeming themselves next year. "Bring It On" is the RACGS response!

Special Report

DIT Kevin St graduate Paddy Crowley is fast gaining cult status among his contemporaries. Last December he won the SLL Medal for Excellence at the CIBSE/DIT Student Awards and, in the spring of this year, got accepted on to the NASA Space Studies Program. This led to a spell studying at the International Space University in NASA in the Summer, from where he sent this initial report to *bs news*.

This is NASA calling Dublin

Arriving at NASA was even more fascinating than my expectations – from the abundance of NASA police officers fashioning the NASA police uniform, to the NASA shuttle bus which transports us around to necessary events. Obviously, organisation and codes of conduct are priority here, even down to the timing of the lectures.

Security briefings, culture orientations and introductions dominated the first two days. If you hold an American drivers license and are renting a bicycle on campus you can rack up penalty points very quickly.

I got to meet Yvonne Cagle, the next astronaut to travel to space, at the

International Space University opening ceremony, where we also received a special welcome speech from Governor Arnold Schwarzenegger via video link. After the ceremony a reception was held in a specially-designed NASA room which included original shuttles, space suits, a moon rock and much more.

After this relaxed opening day we got down to serious business. During one of our core lectures there was a



Paddy Crowley pictured at the International Space University opening ceremony.

live downlink from the International Space Station during which I, and my fellow-class members, were able to ask questions about different aspects of living in space.

There are approximately 130 students from 35 different countries on the programme. Lectures to date have covered different space topics such as law, policy, economics and, most appropriate for me, the electromagnetic spectrum and the sun. The lectures are presented by experts from NASA, former astronauts, and professionals from other space agencies around the globe. This is combined with a heavy related schedule, including workshops, etc

That said, there was also time out. I celebrated Canada Day on campus by winning the beer ping pong game with two of the other Irish students – the Canadians were not too happy being beaten at their own game! We then wrapped up our first week with a trip to the famous Golden Gate Bridge in San Francisco. ■

Paddy's second report will appear in the October issue of *bs news*.



Above: Paddy Crowley pictured with Yvonne Cagle, the next astronaut to travel to space.

Top right: A live downlink from the International Space Station.

Right: The NASA shuttle bus.



To engage people in thinking about how they use their water, Shawn Coles, founder of Water Saving Week in the UK, has developed a freely-available online "Water Footprint" calculator (see www.watersavingweek.org.uk).

How big is your water footprint?

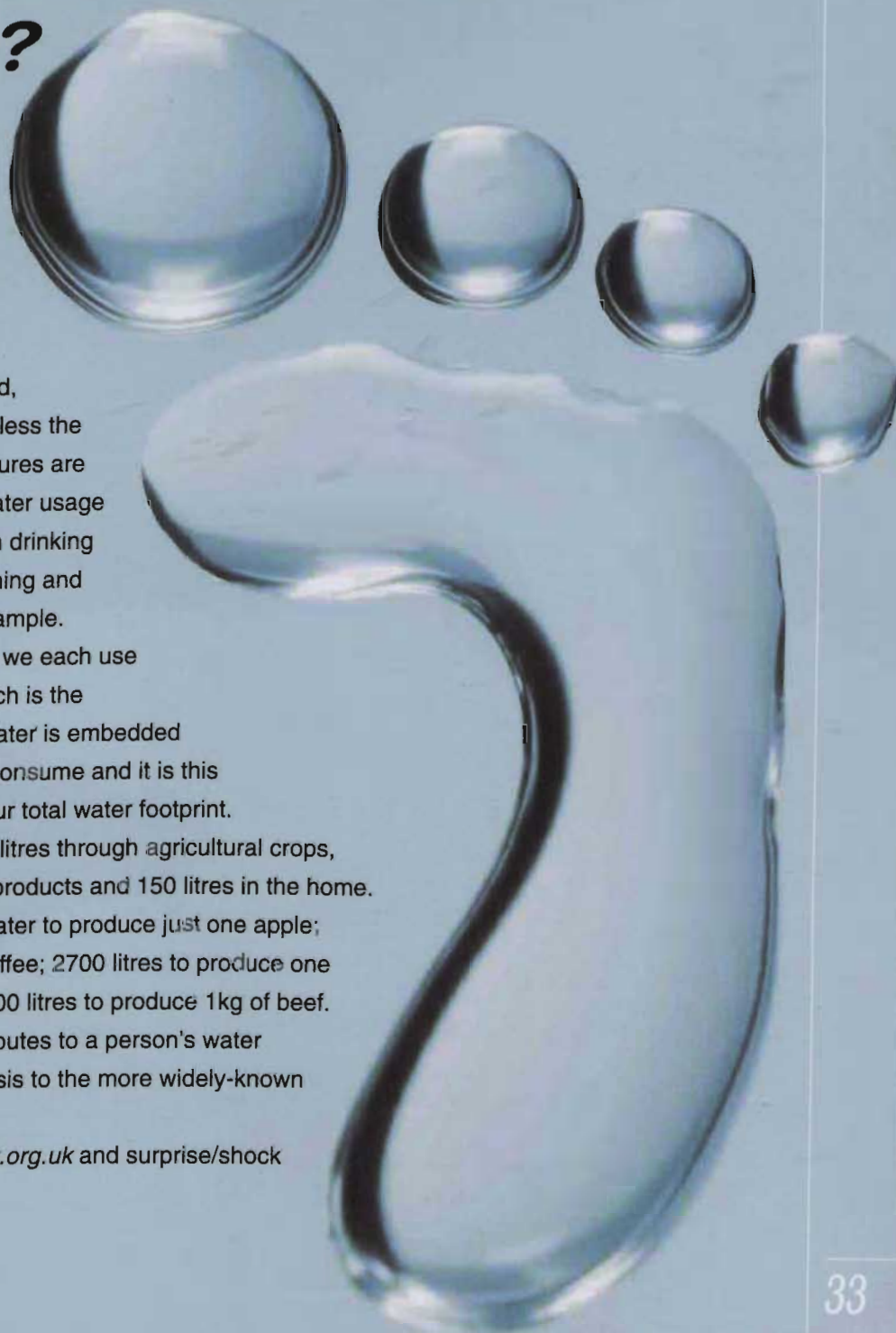
The average amount of water consumed per person, per day, in the UK is about 150 litres (in London this rises to 168 litres). Given the similar lifestyle in Ireland, the figures are said to be more or less the same for here. However, these figures are not a true representation of our water usage as they represent how much clean drinking water we use via taps, toilets, bathing and using the washing machine for example.

Apparently, the shocking truth is we each use a total of 4645 litres per day – which is the equivalent of 50 baths of water. Water is embedded in the products that we drink and consume and it is this much higher figure that gives us our total water footprint.

We each, on average, use 3400 litres through agricultural crops, 1095 litres through manufactured products and 150 litres in the home. For instance, it takes 70 litres of water to produce just one apple; 140 litres to produce one cup of coffee; 2700 litres to produce one cotton shirt; and a staggering 15,500 litres to produce 1kg of beef.

This "embedded" water all contributes to a person's water footprint and works on a similar basis to the more widely-known carbon footprint.

Log on to www.watersavingweek.org.uk and surprise/shock yourself! ■



BTU Golf News

BTU summer outings round-up



Left: BTU at Forrest Little – Jim King, Finheat Group (sponsor) with Tony O'Leary, overall winner; John Ennis, Finheat Group; and BTU Captain Mick Matthews.

Forrest Little Golf Club

Sponsor: Finheat Group

Despite the bad weather leading up to the event, the day itself proved reasonable. While breezy and peppered with showers, there were also plenty of sunny spells. The Forrest Little course lived up to its usual high standards, beautifully set out and playing tough but fair.

Adding considerably to the occasion was the participation of 14 visitors from the South West BTU in the UK, who also played St Margaret's the following day.

The Captain extends his thanks to all who attended, especially Jim King, John Ennis and Tim O'Flaherty who were present on behalf of the sponsors.

Results were as follows:

Overall winner: Dave Cranston, 36pts

Class 1 (0-13)

First: Vincent Broderick, 34pts; Second: Eamon Vickers, 32pts; Third: Michael Matthews, 28.5pts (32-1/2).

Class 2 (14-18)

First: Dave Harris, 34pts; Second: Frank Lynch, 32pts; Third: John Littlefield, 32pts.

Class 3 (19+)

First: Ben McMahon 30pts; Second: Conor Quigley, 28pts; Third: Brendan Sheehan, 28pts.

Front Nine: Ger Hutchinson, 19pts (last 6).

Back Nine: Tony O'Leary, 17pts (last 6).

Visitor Prize: Peter Kelly, 31pts.

South West BTU (UK)

First: Mike Jones, 34pts;
Second: Simon Wilmot, 28 pts.



Right: BTU at Forrest Little – Brendan Bracken with Sean Smith and Andrew Mildon, BTU South West in the UK.

Geordies visit to Arklow

Venue Arklow Golf Club

Date: 25 and 26 June 09

The Irish BTUs entertained the Geordies (North East BTU) at Arklow Golf Club in the last week of June. In this bi-annual event – which started in 1990 – there was great craic and renewal of friendships, which left the town of Arklow very low on its reserves of Guinness.

The Geordies were led by their Captain, Angus Hynd, who lost out to a home town decision in favour of Michael Matthews men in a closely-fought duel.

All credit to Brendan Keaveny and Sean Smith for organising this very successful event.

While extremely enjoyable, the occasion was tinged with sadness as participants remembered Ken Sunderland, principal instigator of the original event, who passed away earlier this year. However, his spirit lives on in the success of this event and the friendship it has fostered between the two societies.



Old friends reunited at Arklow – Brendan Sheehan pictured with Sean Smith, Frank Somers and John Littlefield.



Brendan Keaveney proudly displaying the results of the BTU Ireland v the Geordie BTU get-together in Arklow.



Captain's Day: PGA National – Des Houghton, overall winner, receiving his prize from BTU Captain Mick Matthews.

Captain's Day

Sponsor: Dublin Providers

The PGA National at Palmerstown House was the venue for BTU Captain Michael Matthews Captain's Day. The course was in marvelous condition and, while breezy at times, it was sunny for the most part with just a few showers. All in all the weather had no impact on the quality of golf played, or the enjoyment had on the day. The presentation of prizes and meal was held in the beautifully-appointed Currell Room with the food and service of an excellent quality.

Congratulations to the Captain, Michael Matthews on a wonderful occasion, and to Terry and Gerry Maher of Dublin Providers who's sponsorship is, as always, much appreciated.

Overall winner on the day was Des Haughton with 36pts, playing off 13. Des is having a wonderful year so far and is currently leading the BTU Player of the Year scoreboard.

Full results are as follows:

Class 1

First: Des Prendergast, 35pts;
Second: Ger Hutchinson, (30 - 1) = 29pts;
Third: Sean Smith, 29pts.

Class 2

First: Seamus Kiernan, 35pts;
Second: Kieron Ryan, 32pts;
Third: Michael Bready, (31-1/2) = 30.5pts.

Class 3

First: Terry Maher, 30pts;
Second: Brendan Sheehan, (30-1/2) = 29.5pts;
Third: David Harris, (31 - 2) = 29pts.

Front Nine: Robert Kenny, 16pts.

Back Nine: Liam McDermott, 20pts.

Visitor Prize: Gerry Healy, 40pts.

Par 5 Competition: Vincent Broderick.

Par 3 Competition: Ben McMahon.

Right: BTU Captain Mick Matthews presents John Littlefield with his prize at Faithlegg House.

Below: Captain's Day: PGA National -- BTU Captain Mick Matthews with Dave Harris and Terry Maher, Dublin Providers (sponsor).

Below right: Dave Cranston and BTU Captain Mick Matthews enjoy the evening at Faithlegg House.



BTU Captain Mick Matthews presents Geraldine Coughlan with her prize at the BTU Faithlegg House weekend.

BTU weekend at Faithlegg House

The BTU Weekend is always very special and this year proved no exception with the visit to Faithlegg House Hotel & Country Golf Club attracting 34 participants. The weather on the Friday was awful and all credit to the brave souls who played golf. Saturday was much better, no rain making for a thoroughly enjoyable round of golf.

As is customary on the weekend away, socialising and fun is the primary order of the day. With Kieron Ryan, Dave Cranston, Liam Murphy (Murph) and Gerry Tobin all singing and playing guitar, the craic was indeed mighty. They also accompanied other signers on both evenings, the quality of the singing – from both gents and ladies in attendance – being quite superb.

Kieron and Dermot Ryan deserve special thanks for organizing the event.



back issues

Gas safe doesn't mean plumb safe

While the registration of gas installers is undoubtedly a welcome development, it is important to acknowledge that REGII registration essentially covers gas works, and does not necessarily denote competency or qualifications in plumbing.

A case highlighted by CIPHE in the UK recently clearly illustrated this point. When it was revealed that a householder had been using unhealthy water for two years because an installer had wrongly connected mains taps to a stagnant tank of water after fitting a new boiler, the local MP wanted to know if a Gas Safe installer was involved.

As CIPHE Chief Executive Blane Judd was quick to point out, Gas Safe registration in the UK relates to gas, and only gas. With REGII gas installer registration currently so much to the fore here in Ireland, it is important that the distinction is also made clear to consumers in this country.

Thanks a bunch Terry ...

You can see from the bemused look on Sean Smith's face that he's thinking: "Just what the **** do you expect me to do with this?" as Terry Maher presents him with his prize at



the BTU Captain's outing at the PGA National recently. Terry obviously sees the funny side too just use your imagination Sean!

Stay CIBSE tuned ...

While many consultants, just like architects, have lost their jobs in recent months, it is now more important than ever that they stay in the industry loop. Attending CIBSE lectures and availing of the many networking and educational support services provided is the perfect way to do just that.

Plan ahead Expo ...

Make the most of the extra time you have on your hands to keep abreast of all things innovative. Visit Plan Expo in the RDS on 3/4/5 November next. Log on to www.plan-expo.com for tickets.

Bottom out or rock bottom?

The term "bottoming out" is so bandied about as to mean a slight dip or minor hiccup. It does not! Those of you feeling like things have hit rock bottom are right. It is important not to dwell too much on the negative ... but let's be realistic.

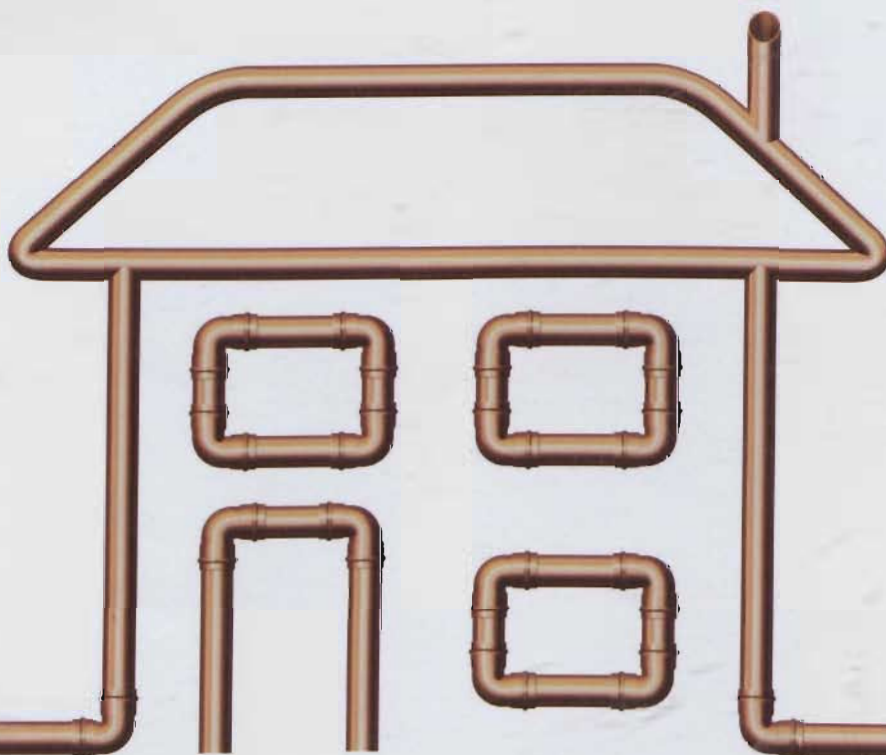
Let's get O'Leary thinking rail

Right throughout the world national Governments are looking to rail to offset the massive carbon footprint of internal flights. Japan introduced the first high-speed rail system as far back as the Tokyo Olympics in 1964 while France, Germany, Spain, the US and even China are doing likewise.

Germany has something like 800 miles of high-speed track; France 1250 miles; and Japan 1550 miles. Anyone who has travelled the Cologne/Frankfurt, Paris/Lyon or Madrid/Barcelona routes will testify that it is quicker and far more stress-free than flying between those cities. It is also significantly more carbon friendly.

I can't see our Government rising to the challenge of investing in high-speed rail links to replace internal flights and long car journeys but, maybe someone should plant the seed in Michael O'Leary's brain. In addition to new revenue sources, he could redeem his dismal environmental image.



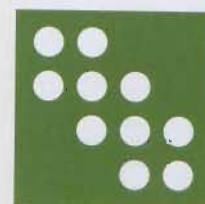


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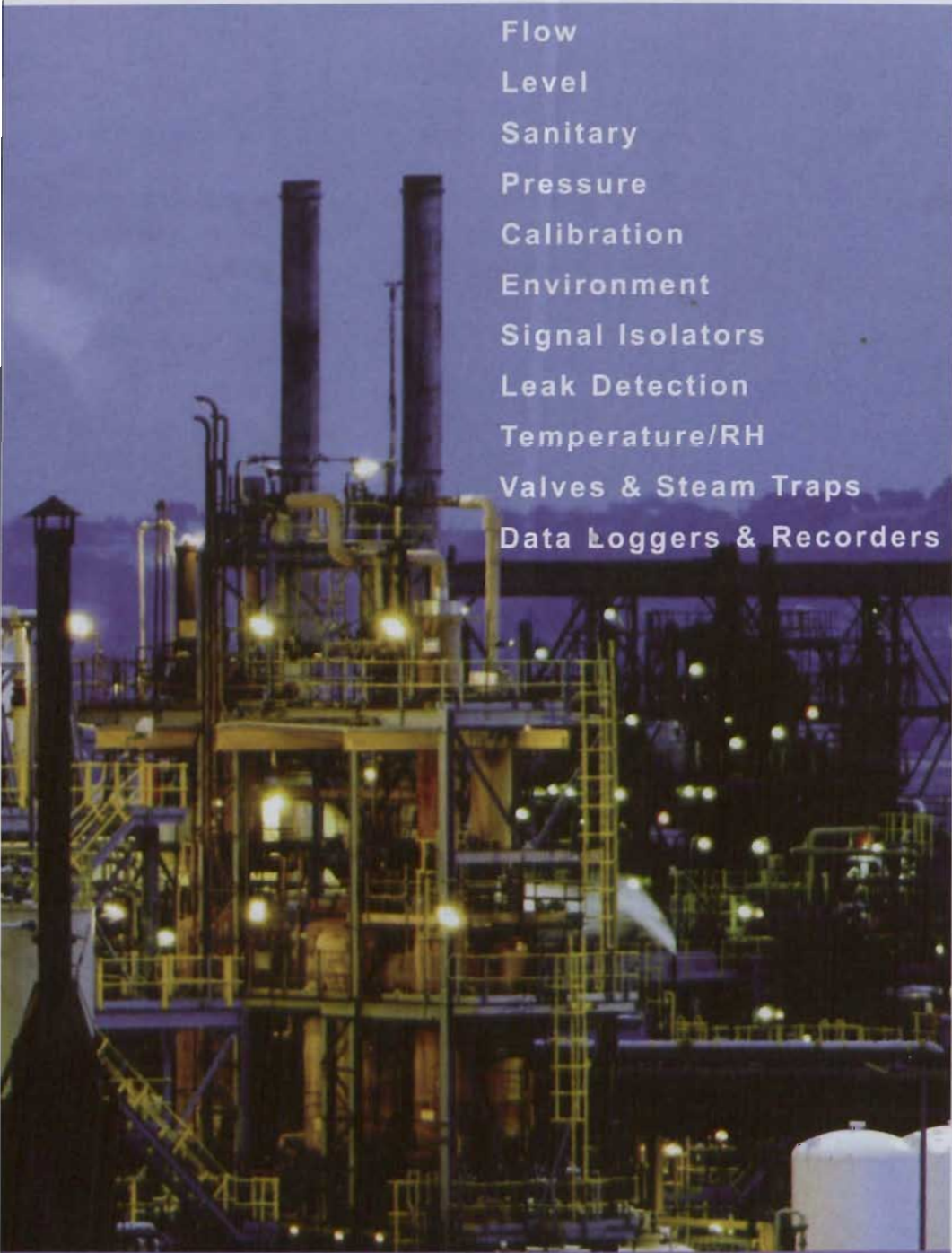
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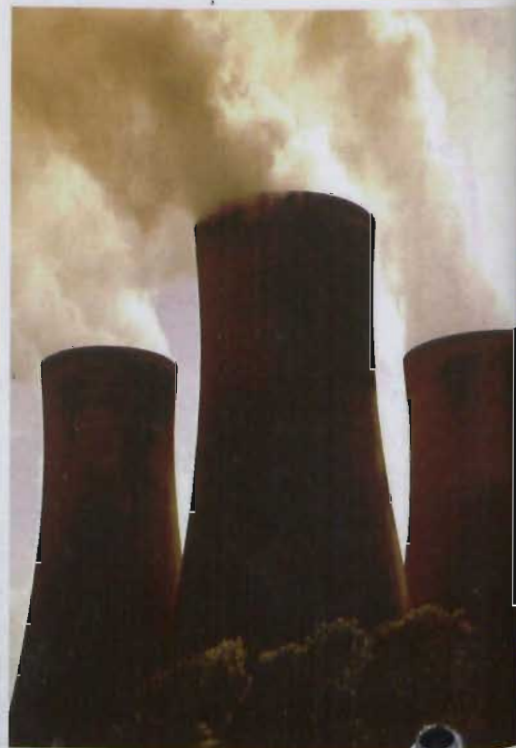
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